How To Make Etch-a-Sketch Thermite

Etch-a-Sketch Thermite

By Anne Marie Helmenstine, Ph.D.

Updated November 04, 2019

You may have learned about exothermic reactions in chemistry class. In an exothermic reaction, chemicals interact and release heat and often light. Burning wood is an exothermic reaction. So is rusting of iron, although the reaction is so slow you don't notice much going on. You can react iron much more quickly and spectacularly using the thermite reaction, which burns aluminum. The classic method of performing the reaction involves iron oxide, aluminum powder, and magnesium, but you can make do with household materials:

50 grams of finely powdered rust (Fe_2O_3)

15 grams of aluminum powder (Al)

Iron Oxide

Collect rust from a rusted iron object, such as rust from a wet steel wool pad. Alternatively, you can use magnesite as your iron compound, which may be collected by running a magnet through beach sand.

Aluminum

This is where your Etch-a-Sketch comes into play. The powder inside an Etch-a-Sketch is aluminum. If you crack open the Etch-a-Sketch, you have the perfect complement to the iron oxide from the previous step. However, if you can't find an Etch-a-Sketch, you can grind aluminum foil in a spice mill. No matter how you get it, wear a mask when dealing with aluminum powder because you don't want to breathe it in. Wash your hands and everything after working with the stuff.

Metal tray with explosive thermite reaction occuring.

Thermite reaction. Andy Crawford & Tim Ridley / Getty Images

Etch-a-Sketch Thermite Reaction

This is insanely easy. Just be sure to choose a location away from anything flammable. Use eye protection when viewing the reaction, since a lot of light is emitted.

1. Mix together the iron oxide and aluminum.
2. Use a sparkler to light the mixture.
3. Move away from the reaction and let it burn to completion before cleaning it up. Once it is cool, you can pick up the molten metal and examine it.

You can use a propane torch instead of a sparkler to initiate the reaction, but try to maintain your distance as much as possible.

Source

Goldschmidt, Hans; Vautin, Claude 1898). "Aluminium as a Heating and Reducing Agent." *Journal of the Society of Chemical Industry*. 6 (17): 543–545.